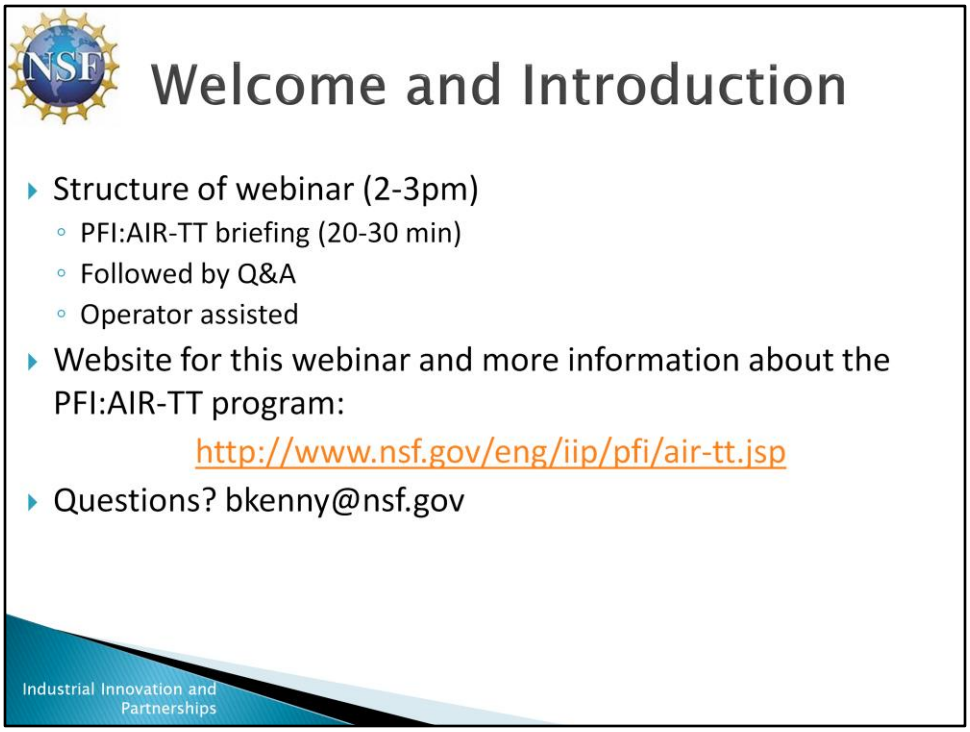
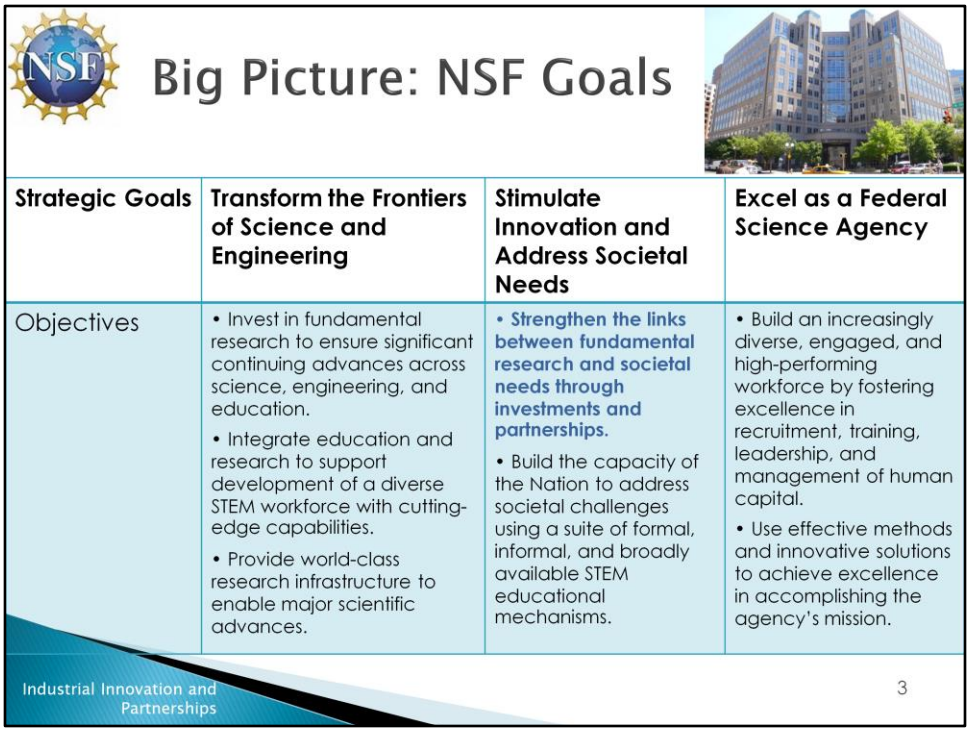
Good Afternoon and thank you for taking the time to attend today's webinar. Today we will be talking about the Partnerships for Innovation: Accelerating Innovation Research _Technology Translation Program, Solicitation NSF 15-570. My name is Barbara Kenny, I am the program director for this program, and I will be conducting the webinar today.



Here's a brief outline of today's webinar. There will be two portions– first I will make a presentation that should take about 20-25 minutes, then the floor will be open for questions. We have an operator assisting us this afternoon and s/he will help with queuing the questions. Please hold your questions until the presentation is completed. I've reserved an hour for the presentation and Q&A.

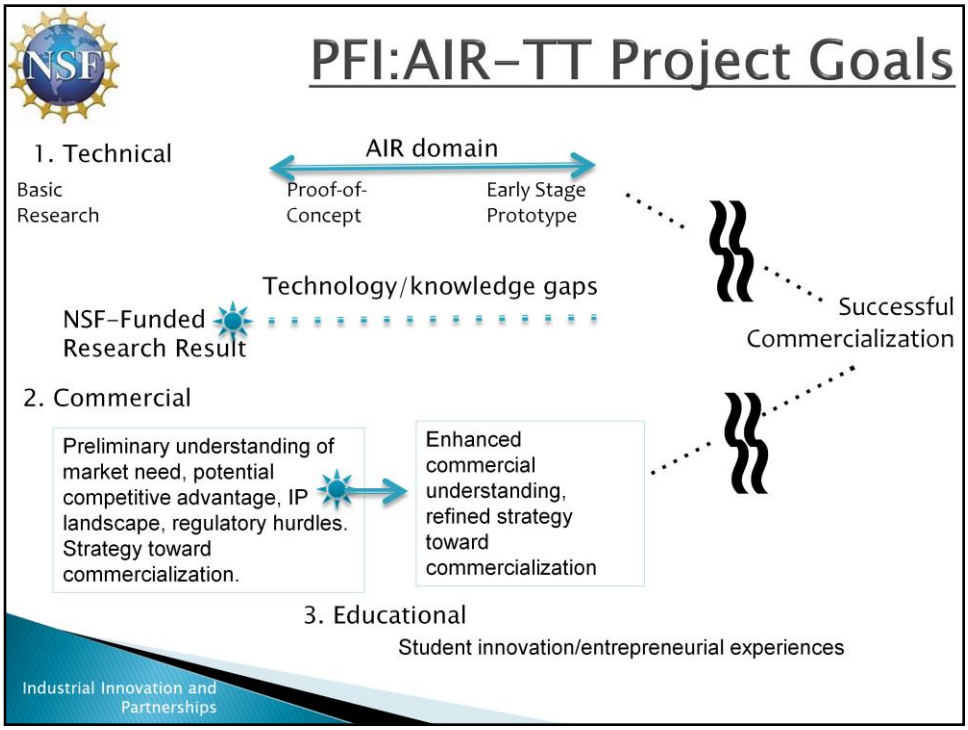
The website for the PFI:AIR-TT Solicitation is shown on the slide, along with the website for this program. The presentation this afternoon is a summary of the solicitation and I would encourage you to review the actual solicitation for additional details. If you have other questions after the webinar, or have trouble connecting, please email me at bkenny@nsf.gov



I always like to start with the big picture to present the context of the program. This is a summary from the current NSF Strategic Plan. In particular, the PFI:AIR program is aligned with the second strategic goal of stimulating innovation and strengthening the links between fundamental research and societal needs. Organizationally, the Division of Innovation and Partnerships, IIP, within the Engineering Directorate, has primary responsibility for this portion of NSF's mission.

The Division of Industrial Innovation and Partnerships, or IIP, has several programs related to promoting innovation and translating research discoveries to societal use and benefit. The predominant one, with 80% of our budget, is the SBIR/STTR program. However, the Division also has an Academic side with five programs aimed at faculty researchers to promote innovation and technology translation. I've listed the websites as reference so you can have a look at the other programs after this webinar.

The PFI:AIR program began in 2010 in response to a desire to speed up the translation of the discoveries and results from our NSF investments in basic research and science to commercial application and use. It is an opportunity for academic researchers to perform the additional, focused research necessary to move their initial research results toward an identified commercial application, without having to first start a company. It also offers an opportunity to add breadth to the education of the participating students in terms of business knowledge and to experience the steps necessary to translate technology from research to use.



Along the innovation spectrum from basic research to successful commercial deployment

In this space of translational research you want to move the research result forward toward commercialization. How far forward depends on where you started and what the gaps to be addressed are. In addition, you also want to make some progress on the commercialization side.

Quoted from the solicitation:

A well-constructed PFI: AIR-TT proposal should convey how the project will accomplish the following goals:

1. Technical – Advancement of the state of knowledge of the underlying research discovery toward commercial application via:

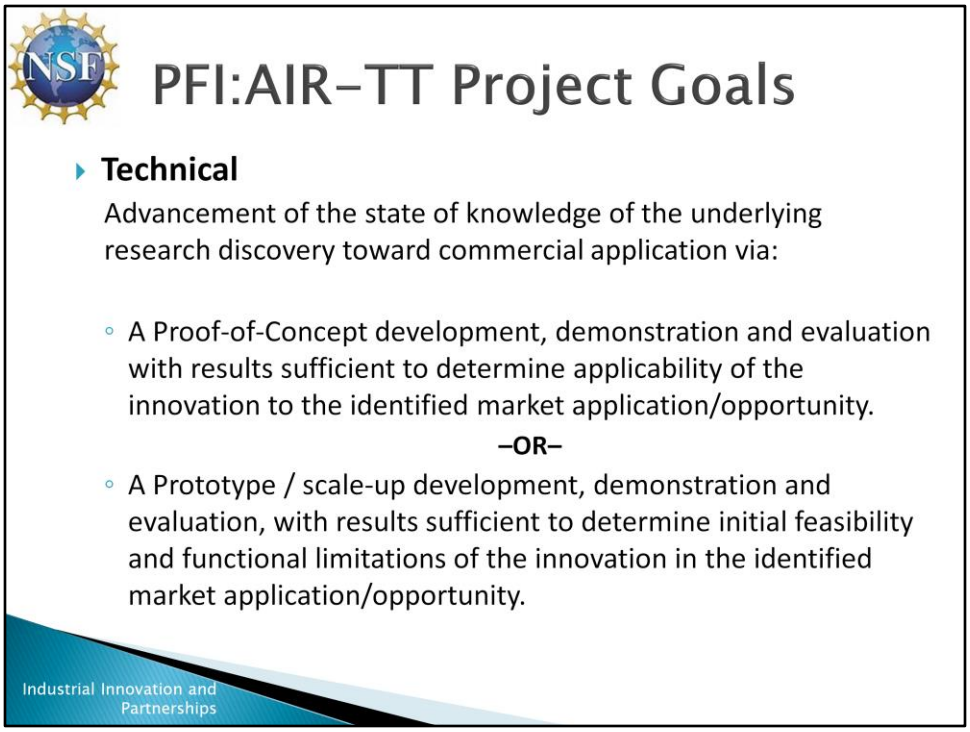
A proof-of-concept development, demonstration and evaluation with results sufficient to determine applicability of the innovation to the identified market application/opportunity; OR

A prototype/ scale-up development, demonstration and evaluation, with results sufficient to determine initial feasibility and functional limitations of the innovation in the identified market application/opportunity.

2. Commercial – Although the predominance of effort is expected to be in the achievement of the technical goals, progress on the market/commercial side is

also expected. The individual(s) with business experience should lead this effort. Types of issues that may be considered include: the identified market space, the market need, the competitive technologies; the potential impact of the proposed competitive innovation/substitution technology; necessary intellectual property protection, licensing opportunities and freedom to operate issues; and/or environmental health, safety, and/or other regulatory issues.

3. Educational – Participants in this effort should demonstrate an enhanced understanding of innovation, technology commercialization and/or entrepreneurship by the end of the project.



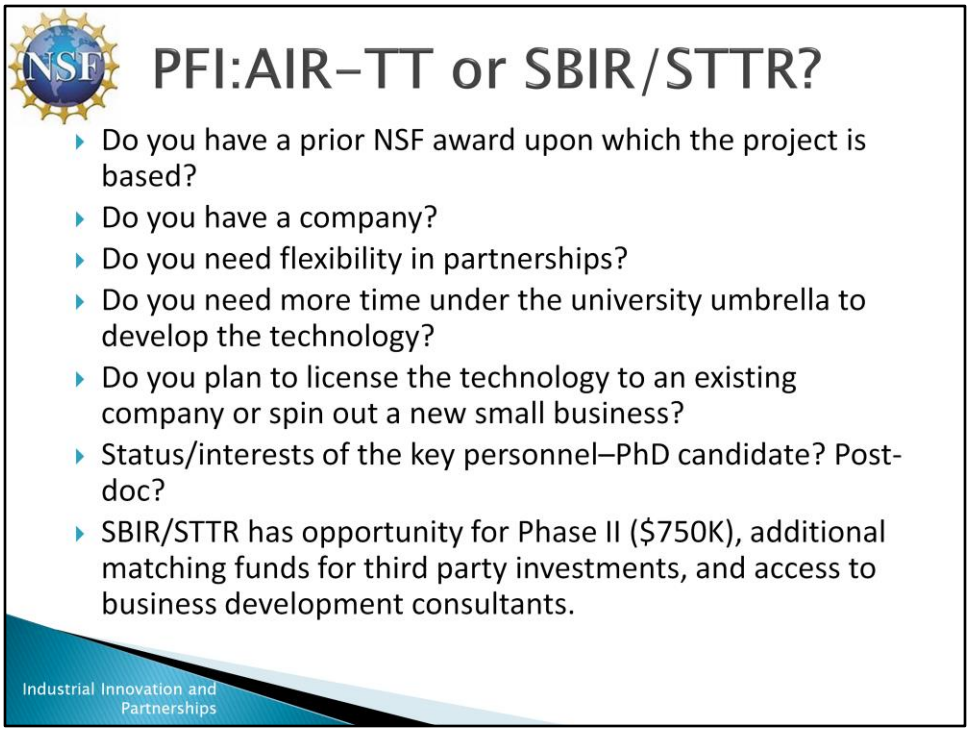
Stating in words what the previous chart tried to convey visually, quoted from the solicitation.

As I said on the innovation spectrum chart, the goal is that the technologies supported by PFI:AIR awards will be further to the right, further along the innovation spectrum, at the end of the award than they were at the beginning. Thus the PFI:AIR-TT solicitation offers a funding opportunity to conduct translational research to develop a proof-of-concept, or prototype or scale-up based on fundamental research results under a previous or concurrent NSF-grant. An additional goal is to offer students and post-docs the opportunity to gain more exposure to and training in innovation than they would under a typical Ph.D. program.

PFI:AIR–TT Project Goals

- **Commercial**
  - Predominance of effort is expected to be in the achievement of the technical goals; however, progress should be made in one or more of the following areas:
    - Understanding potential market need, competing technologies, and impact of proposed innovation.
    - Understanding necessary intellectual property protection and freedom to operate issues.
    - Understanding relevant regulatory issues.
  - The individual(s) with business experience should lead this effort.
- **Educational**
  - Participants should demonstrate an enhanced knowledge of innovation, technology commercialization and/or entrepreneurship by the end of the award.

Industrial Innovation and Partnerships



-I often get the question, Should I apply for SBIR/STTR, or AIR? So I put together this chart to address some of the considerations.
-First of all, if you do not have a prior NSF award, you are not eligible for AIR so your only route is SBIR/STTR.
-Second, if you don't have a company, you are not eligible for SBIR/STTR (as the lead), so AIR may be the better choice.
-AIR offers more flexibility in partnership arrangements by allowing university-university collaboration and not specifying mandatory percentages (as in the case of STTR) for sub awards (outside of the maximum of 50%)
-You may find it advantageous to take advantage of university facilities, assistance, and students rather than to launch an independent spin off company at this point. You may want to consider licensing options rather than developing the technology through a small business, or maybe you just haven't decided yet and need more time to decide the best route while still making progress on advancing the technology
-You may have a promising PhD student who would be an excellent entrepreneur but isn't quite ready yet to start the company. Or you may not have anyone who has the energy, drive, passion and commitment to put into a start up company.
SBIR/STTR is an excellent program if it is a good fit. There is a possibility of a Phase II award, there are opportunities for matching award supplements based on attracting third party investment, and there is access to business consultants and mentoring. Highly suggest contacting relevant program director first for feedback if possible before submitting an application.

Key Facts 15-570

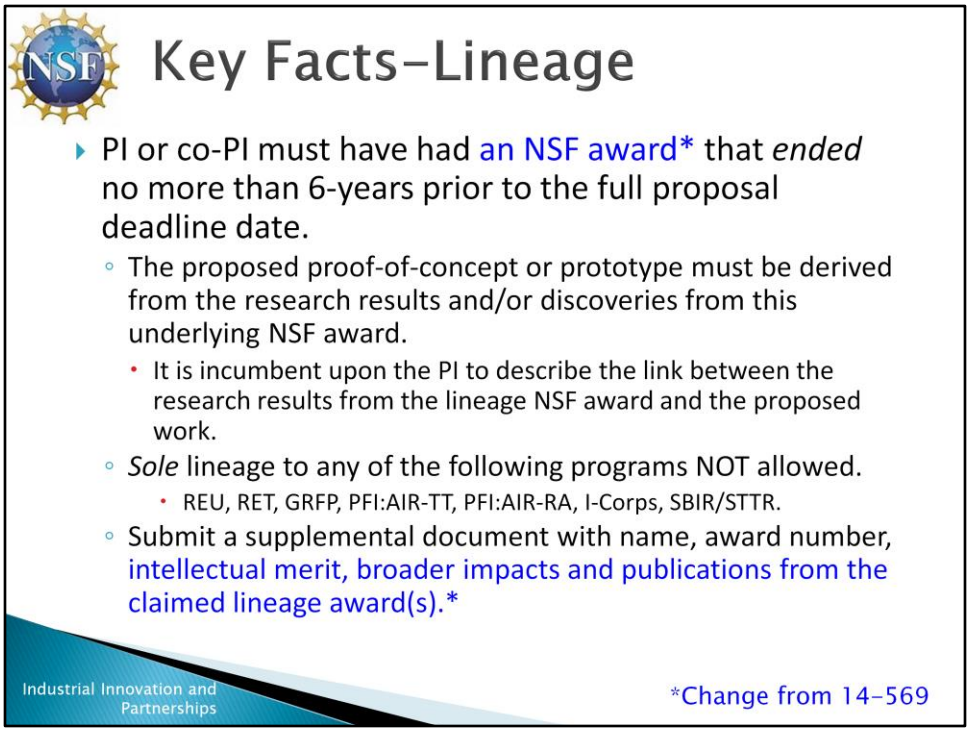
- Four windows

LOI required	Full Proposal
September 8, 2015	October 9, 2015
March 1, 2016	April 1, 2016
September 8, 2016	October 11, 2016
March 1, 2017	April 3, 2017

- PI/co-PI requirements:
  - PI must be faculty member at U.S. academic / research institution
  - At least one (non-PI) individual involved in the work (e.g. co-PI, Senior Personnel, Other Professional, Consultant, Collaborator, Sub-Awardee, etc.) must have explicit business experience.
  - PI may submit only one proposal per submission window.
  - PI may submit to consecutive submission windows.*
  - Co-PI may participate on more than one per submission window.*

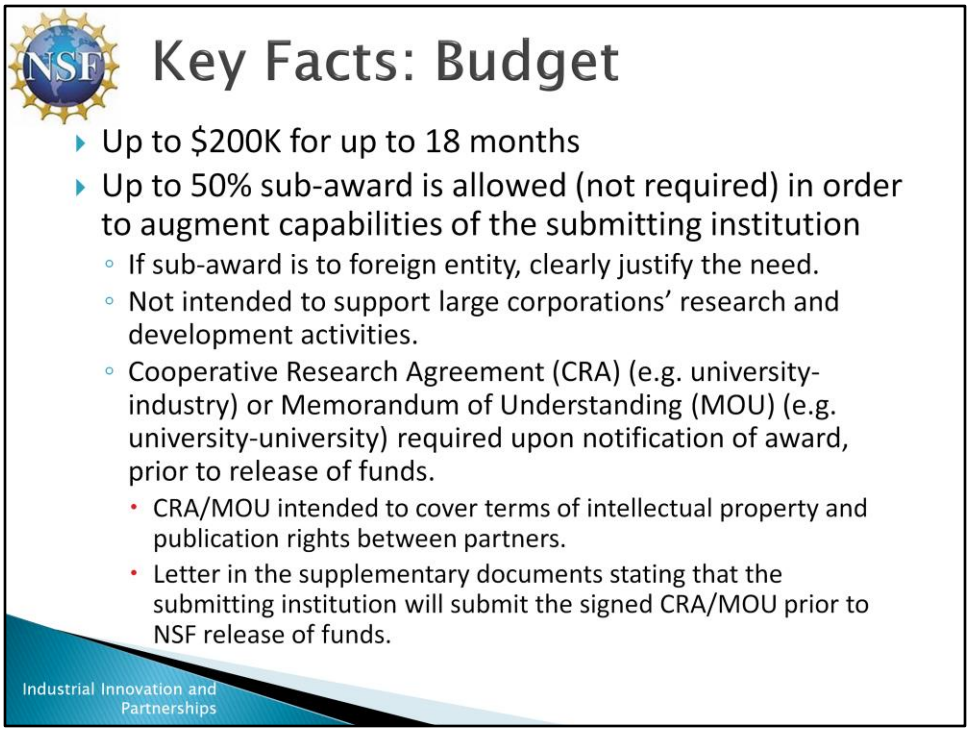
Industrial Innovation and Partnerships

*Change from 14-569

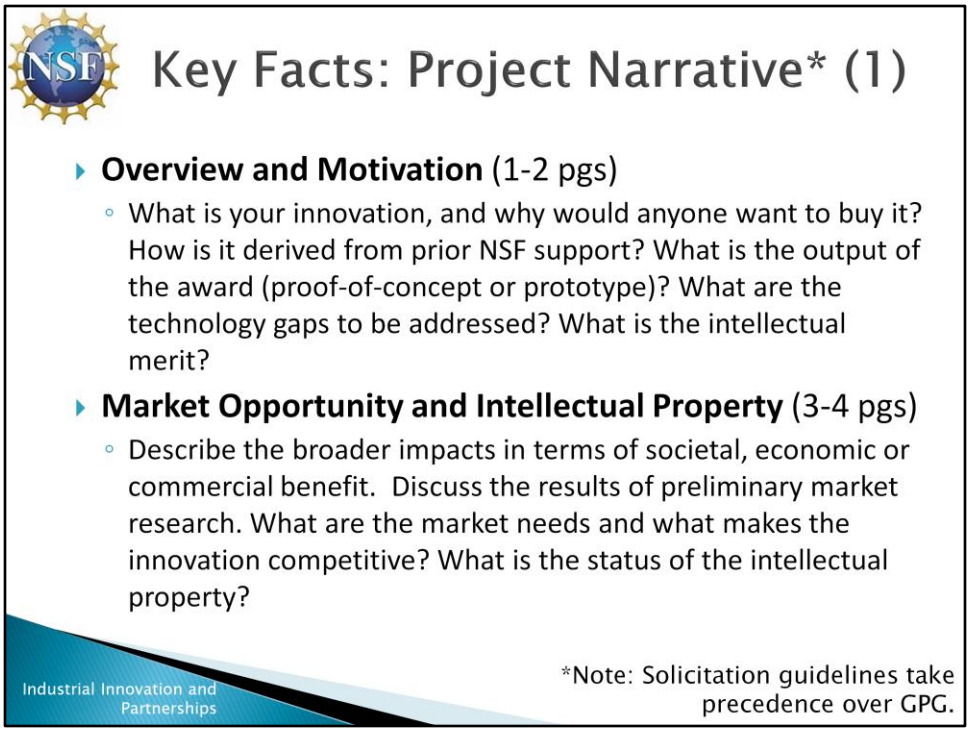


In the last solicitation we specified "NSF Research Award" and there was confusion and a lot of gray lines about what exactly constituted an NSF Research Award. So we have relaxed the language but not the intent that the work proposed be derived from the research results or discoveries from (enabled by) a prior NSF award. Then it is incumbent upon the PI to make that case and describe how the prior NSF award and associated research results underpin this new effort to translate the technology.

We are asking for more information about the lineage award(s) to be submitted as a supplement document, including intellectual merit, broader impacts, and publications. This does not need to be covered in the project description portion of the proposal but rather submitted as a supplemental document.

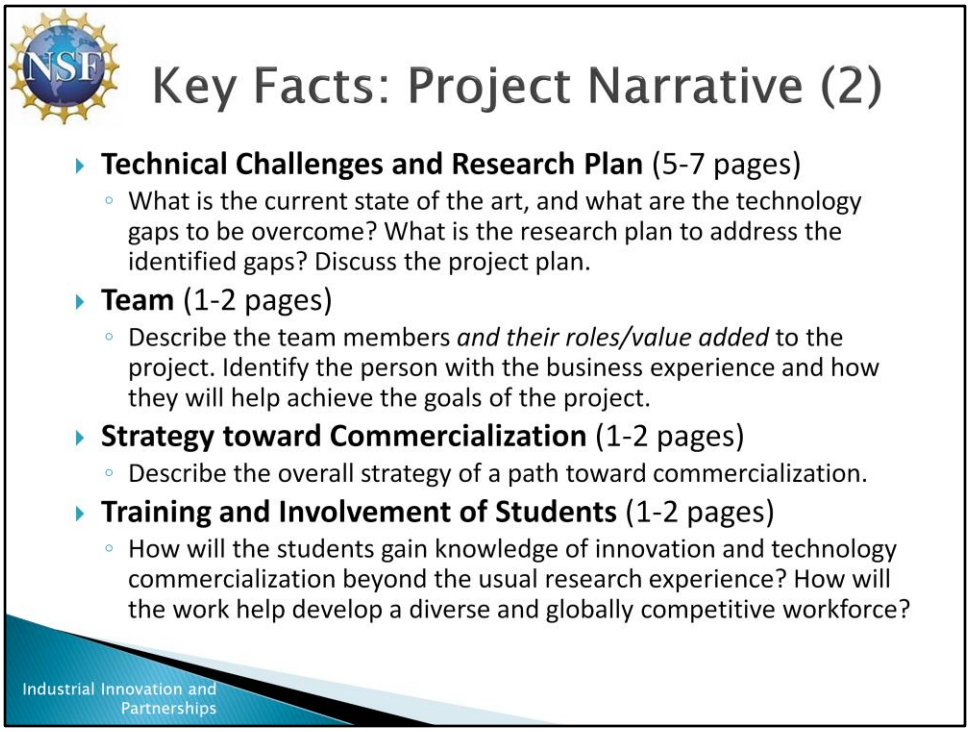


Cooperative Research Agreement, I often get questions on this. This is an agreement that covers intellectual property and publication issues between the proposing institution and any partners or sub awardees where there might be issues of joint development of intellectual property. NSF is trying to ensure that the partners have discussed these issues and have come up with an agreement on how to handle them prior to the issuance of our award.

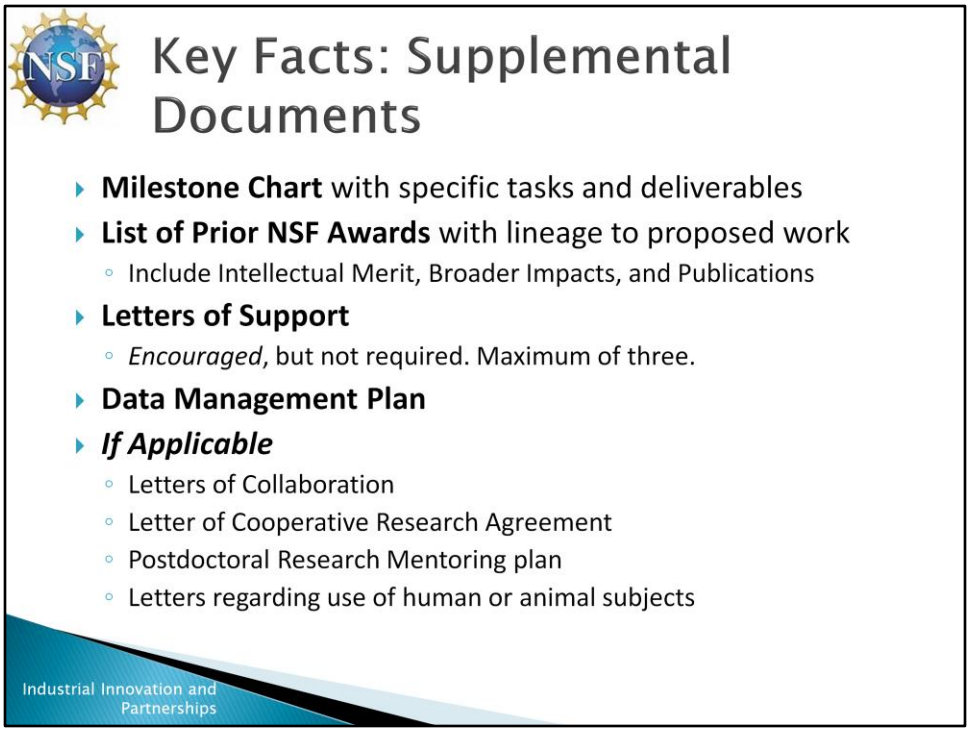


Note that the guidance in the solicitation sometimes differs from what is stated in the Grants and Proposal Guidelines, GPG, that covers the unsolicited proposals that you may be familiar with submitting to particular NSF programs. The guidance in the solicitation takes precedence over the GPG where there are differences.

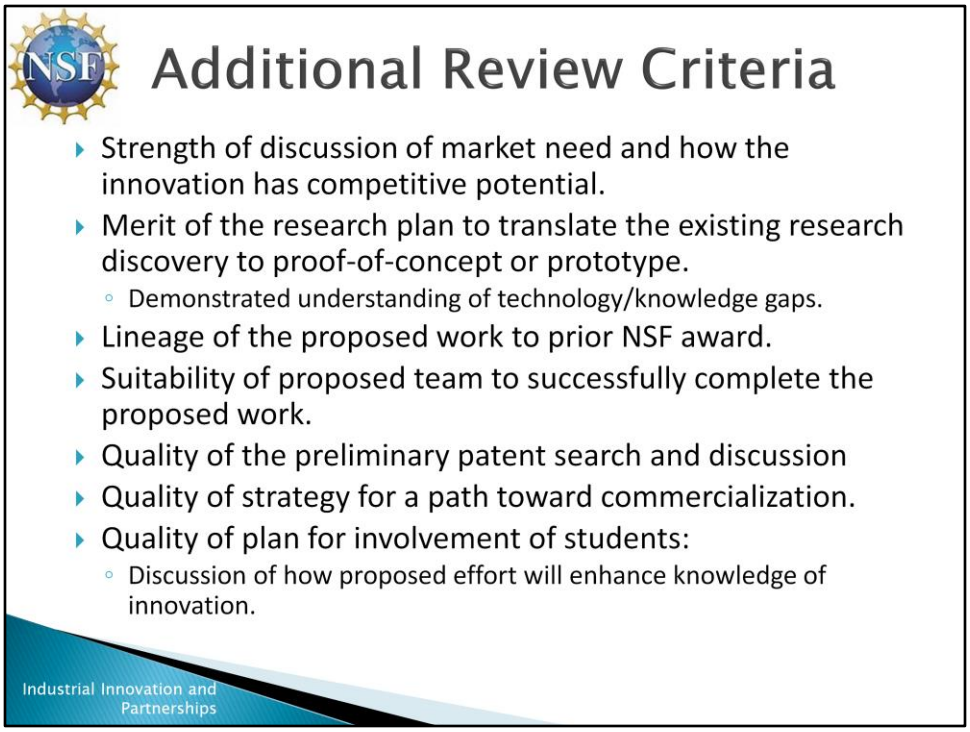
The page suggestions are just that, suggestions. You should write the proposal to cover this requested information in a way that is clear, makes sense, and best describes what you are proposing to do and why it is important. In some cases it may be more important to spend more pages on one particular section than it would be in another technology area. These guidelines should be tailored to make the best case possible for what you are proposing.



A comment on the team description– we are interested in the roles of the team members, e.g. what will they do for the team, how will they help, why is their role important, etc., in addition to any key qualifications. Since the biosketches are included as supplementary documents, its not necessary to completely restate all of that information.

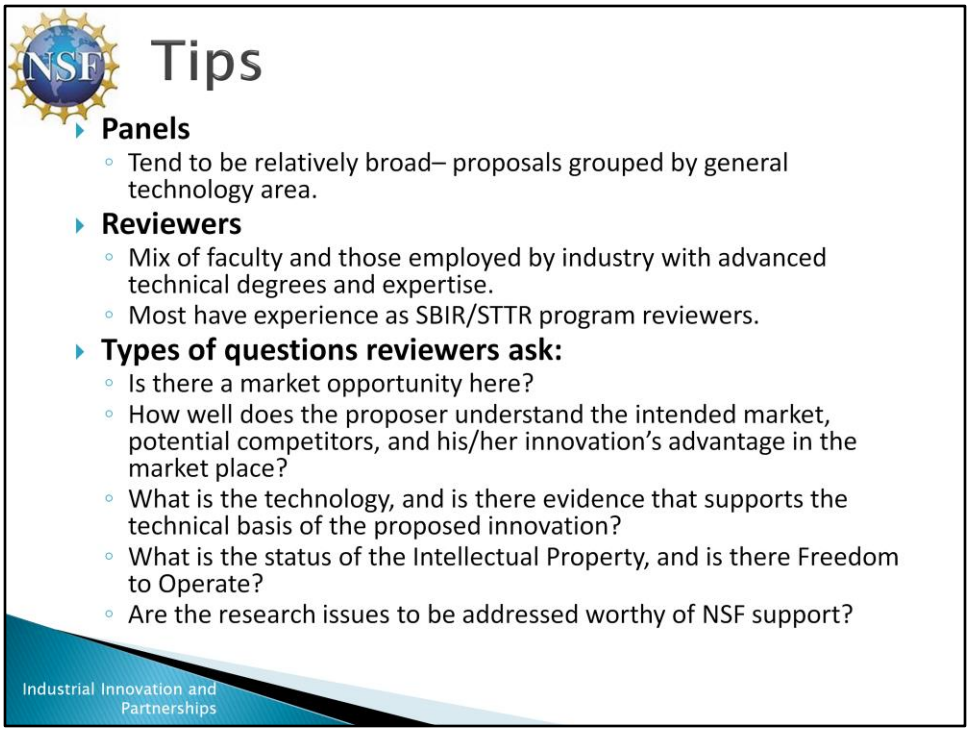


A comment on Letters of Support, these are usually helpful to the proposal, particularly if the PI is making the argument for a need for a particular product and this can be corroborated by the letters of support.



Please take the time to read the entire solicitation, these slides are summaries of the main points but all of this is spelled out in the solicitation.

A few words on post-award activities– there are two things planned. One is about an hour webinar between the PI/students and the NSF program directors to get feedback on possible commercialization directions and plans. The other is an opportunity to attend a grantee meeting or showcase that is focused on technology translation and innovation, such as joining in with the NSF SBIR/STTR Phase II Grantee meeting.



"Worthy" -- Work may not necessarily be "novel" or "transformative" because that occurred on the prior NSF grant. But should be intellectually non-trivial (should advance knowledge) and important with respect to commercialization (i.e., work worth approx.. $200k of NSF funding).
"There should be new knowledge at the end of the award that has moved the technology closer toward commercialization." (from the solicitation)

Thank you for your interest in the PFI:AIR-Technology Translation program. A copy of the webinar will be available at http://www.nsf.gov/eng/iip/pfi/air-tt.jsp

Additional questions, please contact Barbara Kenny at bkenny@nsf.gov

Questions?

Industrial Innovation and Partnerships